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April 15, 1991

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: Past Practices - General Topics
450 Hills St., Room 47
Richland, Washington
March 20, 1991

From/ Appvl.: Robert K. Stewart Date: 4/16/91
Robert K. Stewart, R.I., Coordinator, DOE-RL (A6-95)

Appvl.: Douglas R. Sherwood Date: 4/16/91
Douglas R. Sherwood, Representative, EPA (B5-01)

Appvl.: Larry Goldstein Date: 4/16/91
Larry Goldstein, CERCLA Unit Supervisor, Washington Dept. of Ecology

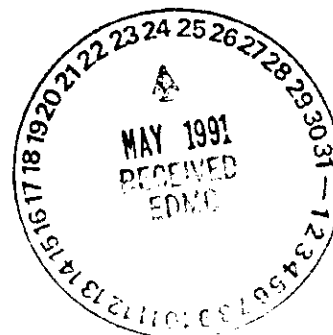
The purpose of this meeting was to discuss general topics which are common to all operable units.

Meeting Minutes are attached. Minutes are comprised of the following:

- Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
 - Attachment #2 - Agenda for the meeting
 - Attachment #3 - Attendance List
 - Attachment #4 - Commitments/Agreements Status List
 - Attachment #5 - Characterization and Monitoring Needs for Environmental Restoration
 - Attachment #6 - Cultural Resources Review Presentation
 - Attachment #7 - Hanford's Cultural Resources: Preserving Our Past
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Prepared by: Doug Fassett Date: 4/16/91
SWEC GSSC

Concurrence by: S. H. Dale Date: 4/16/91
WHC ER Programs



General Topics Meeting Minutes

Distribution:

Dave Einan, EPA (B5-01)
Pam Innis, EPA (B5-01)
Doug Sherwood, EPA (B5-01)
Dan Duncan, EPA, Region 10, RCRA
Chuck Cline, WDOE (two copies)
Dave Nylander, WDOE (Kennewick)
R.O. Patt, Oregon Water Resources Dept.
Ward Staubitz, USGS
Donna Lacombe, PRC
Doug Fassett, SWEC (A4-35)
C.E. Clark, DOE-RL (A6-95)
D.L. Clark, DOE-RL (A5-55)
Julie Erickson, DOE-RL (A6-95)
R.D. Freeberg, DOE-RL (A6-95)
R.E. Gerton, DOE-RL (A6-80)
Jim Goodenough, DOE-RL (A6-95)
R.D. Izatt, DOE-RL (A6-95)
Mary Harmon, DOE-HQ (EM-442)
Paul Pak, DOE-RL (A6-95)
Jim Rasmussen, DOE-RL (A6-95)
Bob Stewart, DOE-RL (A6-95)
Mike Thompson, DOE-RL (A6-95)
S.H. Wisness, DOE-RL (A6-95)
J.M. Hennig, DOE-RL (A5-21)
John Stewart, USACE
Melvin Adams, WHC (H4-55)
Frank Calapristi, WHC (B2-35)
Steve Clark, WHC (H4-55)
Larry Hulstrom WHC (H4-55)
Wayne Johnson, WHC (H4-55)
Alan Krug, WHC (H4-55)
Merl Lauterbach, WHC (H4-55)
Linda Powers, WHC (B2-35)
Fred Roeck, WHC (H4-55)
KaeRae Parnell, WHC (H4-18)
Jim Patterson, WHC (B2-15)
Steve Weiss, WHC (H4-55)
Tom Wintczak, WHC (B2-15)
R.D. Wojtasek, WHC (B2-15)
Don Kane, EMO (K1-74)
Terri Stewart, PNL (K2-12)
Michael A. Neely, PNL (K6-96)

ADMINISTRATIVE RECORDS: 1100-EM-1, 300-FF-1, 300-FF-5, 200-BP-1, 200-UP-2, 100-HR-1, 100-HR-3, 100-BC-1, 100-BC-5, 100-NR-1, 100-NR-3, 100-FR-1; Care of Susan Wray, WHC (H4-51C)

Please inform Doug Fassett (SWEC) of deletions or additions to the distribution list.

Attachment #1

Meeting Summary and Summary of Commitments and Agreements

General Topics Unit Managers Meeting
March 20, 1991

1. The meeting was opened with an introduction of new people:

David Shafer (DOE-RL) will take over some of the groundwater operable units.

Rich Hibbard (Ecology) is an environmental engineer and will be the 1100-EM-1 Unit Manager

Dave Murray is with Brown & Caldwell; he will be providing support to Ecology.
2. Ron Izatt (DOE-RL) is now the Deputy to the Assistant Manager for Environmental Management. Liz Bracken (DOE-RL) is the new division director. The Restoration Branch has been split into two separate branches; a Remediation Branch which will handle RI/FS and ERA activities, and a Programs Branch to handle 5-year planning. Julie Erickson (DOE-RL) is the Remediation Branch Chief and Roger Freeberg (DOE-RL) is the Program Branch Chief.
3. Doug Fassett (SWEC) submitted the final meeting minutes from the February unit managers meeting for approval. He commented that there were no changes to the meeting minutes and very few comments and that the comment drafts had been distributed within two weeks.

USACE TRANSITION ACTIVITIES

4. John Stewart (USACE) discussed the transition of activities for the 1100-EM-1 Operable Unit. Wendell Greenwald (USACE) has been working closely with Steve Clark on the 1100-EM-1 operable unit and is taking over more and more of the responsibility. A meeting was held with EPA the week of March 11 regarding the FS Phase I and II. John Stewart commented that part of the transition has been learning how business is conducted at Hanford.
5. Regarding personnel, most of the initial recruitment is on board, and the rest have been selected. The USACE offices are now opened and are located in rooms 176 and 177 in the Federal Building.

AGGREGATE AREA MANAGEMENT STRATEGY

6. Ecology ^{XLH} has not yet provided ^{comments} comments on the draft Aggregate Area Management Strategy (AAMS) which was provided to Ecology and EPA in

February. There are significant changes from the November draft. The preliminary view of Ecology was that on issues of land use and deletion of some milestones the AAMS should stand alone to define new policy/process and not attempt to address proposed change requests.

7. Doug Sherwood commented that he was not pleased with the plans to deal with the 100 Area, in particular. There are logistics problems in going to early RODs. EPA will develop recommendations on how the strategy will be implemented in both the 100 and 200 areas.
8. Jim Goodenough (DOE) stated that the AAMS would be discussed in the Unit Managers Meeting on 3/21/91.

Action Item GT.99: When it is known that important policy items (e.g., Aggregate Area Management Strategy for 100 Area to be discussed) will be addressed at an operable unit managers meeting, note on agenda when sent out. Action: Jim Patterson (3/20/91)

CHARACTERIZATION TECHNOLOGIES

9. John Evans (PNL) made a presentation on Characterization Technologies. (see Attachment #5). The costs associated with characterization technologies are in part driven by QA concerns. CLP has legal defensibility but does not necessarily provide a high quality investigation. Having a complete spectrum of techniques available is necessary. An example from the Savannah River fuel fabrication area spill was given. This is a non-arid site integrated demonstration and it will be a CERCLA site. Differences in geology between Savannah River and Hanford may prevent cross use of technology (ex., use of the cone penetrometer at the Hanford Site). Another example, the Hanford Z-Plant carbontetrachloride disposal site, was also cited. This is an arid-site integrated demonstration, an expedited response action (ERA), and a future CERCLA site. Mr. Evans pointed out that there are some possible inhibitors to the characterization studies, the most important being funding which is impacted by such items as regulatory acceptance of new techniques and inflexibility in QA/QC requirements. Funding by the Office of Technology Development (OTD) has concentrated on process technology rather than characterization technology. The Hanford Science and Technology Initiative is aimed at developing characterization technology. PNL and WHC hold regular meetings on the Initiative.

CULTURAL RESOURCES

10. Jim Chatters (PNL) presented information on the Cultural Resources Review (see Attachments #6 and #7). Mr. Chatters reviewed the process by which his organization surveys a site for cultural/archeological sites. Sites older than 50 years may be cultural resources. Qualifications for placing sites on the National Register of Historic Places (NRHP) include: 1) the site is tied into broad patterns of history; 2) the site is essential to the understanding of scientific

history; and, 3) the site is part of cultural tradition (ex., Gable Mtn.).

11. Mr. Chatters indicated that he will have personnel on site at the beginning of intrusive activities to identify potential cultural sites. Ten percent of the Hanford Site will eventually be surveyed. This will allow a quick determination on the acceptability of work anywhere on the site. The site survey will be compared with the work plans. Bob Stewart (DOE-RL) commented that the sites of the expedited actions had already been surveyed for cultural resources. Larry Goldstein inquired if there has been training for working personnel on site. Mr. Chatters responded that it would probably be best to train personnel to the consequences of not reporting cultural/archeological findings on site rather than how to recognize a finding.
12. The current status of cultural resources at the various operable units was provided by Mr. Chatters. The 200 areas do not have any cultural sites, although White Bluff Road, which crosses the 200 West area, is still under consideration. The 100-B reactor is nominated for NRHP. Additional artifacts will be looked for. Two NRHP sites have been identified at the 100-K area and at least one more artifact site was identified. Coyote Rapids next to the 100-K area is a religious site. Two archaeological sites have been identified at the 100-N area. The island near the 100-DR/HR area is a National Register Historical District and the 100-HR area has possible religious significance. The 100-FR area doesn't appear to have any cultural sites.
13. The following indian tribes are involved at the site:

Yakima - both were ceded lands by treaty
Umatilla
Nez Pierce - treaty ties to Hanford lands
Wanapum - lived on the Hanford Site
Colville - involved because many of the Indian people who moved North were from this area.

The Yakima, Umatilla and Nez Pierce are located south of the Colombia River.
14. Bob Stewart asked if the Natural Resource Development Assessments would have a bearing on the negotiations with the tribes. Mr. Chatters responded that probably they would have no bearing because many of the tribes consider the cultural resources to be the same as the natural resource; e.g., the fish have a religious significance as well as being a traditional food of the indians who lived here. The Natural Resource Development Assessments now treat food gathering areas as well as food species as a natural resource.

EXPEDITED RESPONSE ACTION

15. Wayne Johnson (WHC) explained that he had not prepared a formal presentation because he had assumed that he would be discussing the comments from the regulators on the Expedited Response Action (ERA). These comments were not available and Mr. Johnson gave a short disquisition on the process for scoring the sites for ERAs.

Action Item GT.100: Ecology, EPA, USACE will review the Expedited Response Action prioritization document and provide comments in the next one-two weeks. Action: Ecology, EPA, USACE (3/20/91)

16. Mr. Johnson described the process proposed to be used to score sites for ERAs. The Purpose and overview is first defined in the ERA procedure. This may be followed by scoping and an aggregate area study. Then an evaluation is done for cost/schedule. This is followed by a 4-5 page discussion of the regulatory overview. Decisions can be based on the items in the TPA, CERCLA (removal action risk), weather expectations, fire and explosion hazards, NCP & RCRA interim measures regulations, general RCRA regulations, minimum exposure.
17. The scoring is based on the following: 1) priority 1 could be based on the danger factor, critical actions needed, or cost/schedule benefits. 2) priority 2 is used for an item which could worsen but is not an imminent problem (maximum points in this category - 255) 3) priority 3 could have no risk but good reasons for expediting, such as providing input for new technologies (maximum points in this category - 205).
18. Doug Sherwood asked who will make the decision on the priority of the ERA sites for the next fiscal year. Mr. Johnson responded that this is a coordinated effort and that sites can be nominated by the unit manager, one of the regulators or the public. Mr. Johnson also pointed out that he is in the process of developing a database to track the possible ERA sites and the actions taken. This will be provided to the regulators when it is finalized.
19. Three ERAs have been approved and four more have been proposed. The expedited response action for N-Springs could involve one of the following technologies: pump and treat; physical grout slurry; cryogenic slurry wall with possible chemical treatment to precipitate the contaminants.

Action Item GT.101: Clarify the funding of ERAs for fiscal year (FY) '92 and '93 regarding the Expedited Response Actions. Action: Tom Wintczak (3/20/91)

Action Item GT.102: Ecology will provide a presentation in the April UMM on the Model Toxics Control Act (MTCA) and its application to the Hanford Site. Action: Rich Hibbard (3/20/91)

Attachment #2

Agenda

General Topics Unit Managers Meeting
March 20, 1991

9:00 - 9:30

Approval of February's Unit Managers Meeting Minutes - Doug Fassett

ACE Transition - Bob Stewart/John Stewart, ACE

Aggregate Area Management Strategy - Ecology/EPA

9:30 - 10:00

Characterization Technologies - John Evans/PNL

10:00 - 11:00

Cultural Resources Review - Jim Chatters/PNL

11:00 - 11:30

Expedited Response Selection Process - Wayne Johnson

11:30 - 12:00

Action Item Status - Doug Fassett

April Unit Managers Meeting Agenda - Bob Stewart

Attachment #3

Attendance List

General Topics Unit Managers Meeting
February 20, 1991

Name	Org.	O.U. Role	Phone
Murrry, David	B&C	Ecology Support	(503) 244-7005
Goodenough, Jim	DOE-RL	Unit Manager	(509) 376-7087
Pak, Paul	DOE-RL	100-NR	(509) 376-4798
Shafer, David S.	DOE-RL	GW OUs	(509) 376-7167
Stewart, Robert K.	DOE-RL	RI Coord.	(509) 376-6192
Cline, Chuck	Ecology	Hydrogeology	(206) 438-7556
Cross, Steve	Ecology	CERCLA Unit	(206) 459-6675
Goldstein, Larry	Ecology	Unit Manager	(206) 438-7018
Hibbard, Richard	Ecology	1100-EM-1	(206) 493-9367
Nylander, Dave	Ecology	Kenn. Off. Man.	(509) 546-2992
Einan, David	EPA	Unit Manager	(509) 376-3883
Innis, Pamela	EPA	Unit Manager	(509) 376-5466
Sherwood, Doug	EPA	Unit Manager	(509) 376-9529
Chatters, Jim	PNL	Culture. Res.	
Evans, John	PNL	Character. Tech.	(509) 376-0934
Lacombe, Donna	PRC	EPA Cont.	(206) 624-2692
Clyde Moore	Parametrix	WDOE Support	(206) 455-2550
Fassett, Doug	SWEC	GSSC to DOE-RL	(509) 376-3136
Fryer, Bill	SWEC	GSSC to DOE-RL	(509) 376-9707
Davis, Kathy	CNES	GSSC to DOE-RL	(509) 376-0412
Foote, Alden	USACE	Tech. Branch	(509) 522-6870
Stewart, John	USACE	PM	(509) 522-6331
Drost, Brian	USGS	EPA Support	(206) 593-6510
Carlson, R.A.	WHC	200/300 Env. Eng.	(509) 376-9027
Henckel, R.P.	WHC	Env. Eng.	(509) 376-2091

Attachment #4

Action Items Status List

General Topics Unit Managers Meeting
March 20, 1991

Item No.	Action/Source of Action	Status
GT.31	DOE/WHC is to develop an implementation plan for the strategy associated with the logic diagram on source/groundwater operable unit integration and streamlining. This plan is to include schedule and budget impacts associated with implementation. Action: K.M. Thompson, (3/20/90, GT-UMM)	Open WHC is pulling the implementation plan together (12/18/90). A meeting of involved parties is scheduled on 2/21/91 (2/20/91). Several meetings have taken place. (3/20/91)
GT.38	If possible, at the May Unit Managers Meeting a presentation on the approved, preferred alternative method for disposal of the reactors will be given. Action: Jim Goodenough (4/18/90, GT-UMM)	Open The final disposal decision (proposed action) has not yet been made. A presentation will be made to the Unit Managers at the earliest meeting following formalization of the proposed action (9/19/90). The final EIS was forwarded to EH-1 on 2/7/91 for final approval (2/20/91). Continues on approval cycle (3/20/91).
GT.38A	The presentation per Action Item #GT.38 is to include discussion on how NEPA compliance, land use, and the final disposition of the reactors is being addressed by DOE. (10/16/90, GT.UMM)	Open One piece removal of the reactors is proposed; land use needs to be addressed (2/20/91).
GT.43	A follow up meeting will be scheduled with EPA, Ecology, DOE and WHC to discuss the apparent conflicts between NEPA and RCRA/CERCLA activities. Action: Julie Erickson/Paul Dunigan (4/18/90, GT-UMM)	Open Headquarters is working on draft guidance for the EA and Phase III Feasibility Study to be incorporated into one document. Julie Erickson will set up a meeting when guidance has been received. (10/16/90)

- GT.49 The plan for the Background Strategy is to be delivered to DOE for review by June 1990. This plan is to include a brief discussion of estimated costs and associated schedules for determining background in both media. Action: Jim Hoover, WHC (5/16/90, GT-UMM) *Closed*
WHC delivered the first draft of the document to DOE the first week in January. A presentation on the background strategy is planned for the February UMM (1/23/91). The regulators expect to see the document by March 15 (2/20/91). The document has not been received by the regulators (3/20/91). *"Characterization and the Use of Soil and Groundwater Background for the Hanford Site" Document was issued to DOE and the regulators on March 22, 1991 (3/27/91).*
- GT.63 WHC to draft a letter for DOE to send to EPA and Ecology proposing to treat the 200-UP-2/200W Area and the Associated Groundwater contamination as an Aggregate Area Management Study (AAMS). Action: Julie Erickson (8/15/90, GT.UMM) *Open*
The letter has been transmitted to DOE. TPA changes are being proposed (12/17/90). A final strategy is delayed pending the development of an overall direction by ER for implementation (1/23/91). Progress on the AAMS strategy is to be updated at the March UMM (2/20/91). No further progress (3/20/91).
- GT.68 A training plan on the Quality Assurance Requirements Document (QARD) will be developed and shared with the regulators for their review. Action: Ron Cote' (9/19/90 GT.UMM) *Open*
The development of the plan is being expedited (11/14/90). Ongoing (3/20/91).
- GT.70 Discuss the prioritization and preparation of operable unit work plans. Link this to the streamlining strategy and include it as a topic for the next UMM. Action: Larry Goldstein and Doug Sherwood (10/16/90, GT.UMM) *Open*
No decision will be reached prior to Ecology's receipt of the change order package. A better understanding of the schedules of soon to be approved work plans is needed by Ecology (1/23/91). It is imperative to EPA that prioritization be discussed before a plan is implemented by DOE. EPA

- GT.71 Provide the ENCORE project plan and copies of all deliverables to EPA and Ecology. Action: Nancy Werdel (10/16/90, GT.UMM) Open
The project managers received a presentation by Jack Waite (11/14/90). The project plan has not yet been delivered to the regulators (1/23/91).
- GT.72 WHC will set up a meeting to coordinate RDDT&E supported and operable unit specific performance assessment (PA) activities, and assess the direction of the activities. Action: Jim Patterson (11/14/90) Open
WHC and DOE met on Dec. 6. The response to the EPA report is being drafted. WHC and DOE are developing a position which will be presented at the Feb. UMM (12/17/90). A presentation is planned for the March UMM (2/20/91). *A separate meeting will be set up with EPA in April to discuss their concerns. The decision to present information at the Unit Managers meeting will be made at that time (3/27/91).*
- GT.74 Provide the proposal to the regulators to improve comment/disposition resolution process on documents. Action: Bob Stewart, Tom Wintczak, John Stewart (11/14/90) Open
A draft proposal has been prepared. The document is in internal review and will be transmitted to the regulators when the review is complete (12/17/90).
- GT.75 Ecology and EPA are to provide comments on the draft EII 4.3 and a strategy paper regarding the handling of RI/FS derived waste. Action: Larry Goldstein, Pam Innis (EPA) (11/14/90) Closed
Comments on the document were received from Ecology on 12/10/90. Responses are being developed by WHC/DOE-RL (12/17/90). Paul Day (EPA) is preparing a letter response (1/23/91). The DOE response to regulator comments will not be issued until after receipt of the EPA comments (2/16/91). EPA's letter with comments was received. A comment response meeting will be set up prior to the April UMM. (3/20/91)

GT.76	Ecology and EPA are to provide comments on the revised EIs 4.2 and 5.4 related to the handling of drilling decontamination fluids. Action: Larry Goldstein, Doug Sherwood (11/14/90)	Open Comments on the document were received from Ecology on 1/10/90. A draft response was provided to Ecology on 1/23/91. A final response is under development by a task group for DOE (1/23/91). The final DOE response to the regulators will not be issued until receipt of the EPA response (2/16/91).
GT.77	DOE is to prepare a proposal for the handling of existing drums of decontamination rinsate. Action: Mike Thompson (11/14/90)	Open No change in status (3/20/91).
GT.80	Review time requirements for production of UMM meeting minutes with TPA signatories. Discuss longer time allotment with project managers. Action: Bob Stewart (11/14/90)	Closed A request has been made by Bob Stewart that the DOE-RL TPA Project Manager revise the TPA. Complete as is (3/20/91).
GT.82	Determine a date for a presentation/briefing limited to investigation/characterization research and development. Action: Mark Hanson/Bob Stewart (12/18/90)	Closed Bob Stewart will coordinate with Mark Hanson to set a date for the presentation (1/23/91). Closed by Presentation at 3/20/91 meeting.
GT.85	Assign a lead to develop an agenda/attendance list for a scoping meeting to address the operable unit prioritization and the work plan review procedure. Action: Doug Sherwood (12/18/90)	Open To be discussed at the next Unit Managers Meeting in March (2/20/91). Awaiting implementation of the strategy. To be done in May (3/20/91).
GT.87 (HR1.24):	Check into reviewing the QA requirements document (QARD) to be issued to EPA and Ecology. Action: J. D. Goodenough (8/16/90, HR1-UMM)	Open A presentation on the QARD is to be given in March. The QARD is expected by Ecology in the third week in March (2/20/91). The QARD was issued on March 18, 1991 (3/27/91).

- GT.88 Provide a report at the February UMM on the application of the newly identified safety requirements to past practice activities. Specifically, address how the requirements will apply to approved RI/FS and IRA activities, and how existing and forthcoming work plans need to be revised. Action: T. Wintczak, M. Lauterbach, R. Carlson (1/23/91)
- Open
EPA expects a letter from DOE which indicates how the schedules for the operable units will be affected (2/20/91). *A letter is being prepared and will be issued to DOE by Mid-April 1991 (3/27/91).*
- GT.89 Provide Ecology and EPA with a schedule for completing photogrammetric and surveying requirements necessary to develop the 100 Areas Base Map. These requirements include: 1) Aerial photography; 2) ground proofing; 3) converting historical and new data to Lambert Coordinates; and, 4) digitizing historical and new data for use in a G.I.S. system. Action: Bob Henckel (1/23/91)
- Open
A presentation was made at the February UMM by B. Henckel and Ecology expects a schedule to be presented at the March UMM (2/20/91). *Funding for mapping activities will be evaluated at mid-year review and a schedule will be laid out for Hanford mapping work that is not specific to each OU. Surveying of existing wells within each OU will be funded by that OU (3/27/91).*
- GT.90 DOE is to develop a plan for well head elevation surveys and develop a response regarding funding availability for this work. Due at the February 1991 UMM. Action: K.M. Thompson (1/23/91)
- Closed (3/20/90)
Funds for the surveys have been provided to each operable unit; the surveys will be done on a operable unit by operable unit basis (2/20/91).
- GT.91 Set up a meeting between EPA, WHC, Ecology and DOE on how the determination is made to include certain data in HEIS and on what data validation entails. Action: Bob Henckel, Julie Erickson (1/23/91)
- Open
No Change (3/20/91)

GT.92	Develop recommendations to coordinate non-ER-funded activities such as the soil stabilization action near the 200W Area T-Plant. Include suggestions for methods to inform the public (e.g., use of TPA quarterly meetings.) Action: Jim Patterson (1/23/91)	Closed (3/20/91) The action was brought to the attention of Linda Powers by WHC. WHC will provide information to the individuals responsible for the TPA quarterly meetings after the interim action has been completed. B. Stewart requested that this action be tracked (2/20/91).
GT.93	WHC is to develop a recommendation on the use of English vs. metric units for future Past Practices work/reports at the Hanford Site. Action: Jim Patterson (FF5, 1/23/91)	Closed (3/20/91) J. Patterson found the DOE order which requires WHC and all of their subcontractors to go metric. D. Sherwood confirmed that EPA would go metric by 1993. B. Stewart said all DOE programs would have to come to agreement on the units used (2/20/91).
GT.93A	The issue of English vs. metric units is to be presented to the Data Administration Council and possibly the DOE site data council. Action: B. Henckel (2/20/91)	Open
GT.93B	The issue of English vs. metric is to be discussed with Mel Adams (WHC) and the personnel working on the guidance documents to determine how the units used can be standardized from one document to the next. Action: J. Patterson (2/20/91)	Open <i>Work plan guidance documents will specify the use of both English and metric in future work plans (2/27/91).</i>
GT.95	Arrange a briefing on the site surveying task and Kaiser's progress in developing technical requirements for the surveying. Action: K.M. Thompson (2/20/91)	Open Nancy Werdel was informed (3/20/91).

GT.96	Provide D. Einan (EPA) and Ecology with a controlled copy of the OSM procedures. Action: J. Erickson, J. Kessner (3FF1, 2/21/91)	Open
GT.97	Ecology is to respond to the letter from L. Hulstrom which requests a determination on whether or not Enduraseal is designated a hazardous substance. The Enduraseal is being considered for use on the roads to the 300 Area process trenches and on other areas. Action: L. Goldstein (3FF1, 2/21/91)	Open
GT.98	Track the progress of informing the DOE computer people that Ecology needs to be connected to HLAN and cc: mail. Action: B. Stewart (2/20/91)	Open
GT.99	When it is known that important policy items (e.g., Aggregate Area Management Strategy for 100 Area) will be addressed at an operable unit managers meeting, note it on the agenda when it is sent out. Action: Jim Patterson (3/20/91)	Open
GT.100	Ecology, EPA, USACE will review the Expedited Response Action prioritization document and provide comments in the next one-two weeks. Action: Ecology, EPA, USACE (3/20/91)	Open
GT.101	Clarify the funding question for fiscal year (FY) '92 and '93 regarding the Expedited Response Actions. Action: Tom Wintczak (3/20/91)	Open

GT.102	Ecology will make a presentation at the April Unit Managers Meeting on the Model Toxics Control Act (MTCA) and its application to the Hanford Site. Action: Rich Hibbard (3/20/91)	Open
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CHARACTERIZATION AND MONITORING NEEDS FOR ENVIRONMENTAL RESTORATION

I. Why Are Improved Methods Needed?

- Cost
 - In-field/In-situ
 - Streamlined QA
 - Maximize digital processing capabilities
 - Utilize less labor intensive methods/robotics
- Quality/Credibility
 - Reduced costs per unit activity can translate to more comprehensive investigation
 - Integrated computing reduces labor costs, transcription errors, and potential loss of information
 - Use of cutting edge technology helps insure that all potential problems are being addressed
 - Larger data grids help minimize uncertainty associated with spacial variability
- Safety
 - In-field identification of contaminants can provide better assurance of correct worker protection strategies
- Effective Remediation
 - Success of remediation strategy may be highly dependent on representative remediation information

II. Case History- Savannah River M Area TCE Spill; Non-Arid Site Integrated Demo

- Fuel fabrications waste-TCE and PCE in vadose zone and groundwater
- 2 horizontal boreholes for remediation-2 more under construction
- Remediation techniques include vacuum stripping (Phase I) and bioremediation (Phase II)
- 45 wells drilled for characterization and monitoring
- Site is reasonably well characterized
- Methods evaluations include:
 - sediment VOA sampling (SRP, LLNL)
 - sediment bacteriological sampling (SRP, ORNL, PNL, FSU)
 - thermal flow probe (SNL)
 - EMI tomography (LLNL)
 - resistance tomography (LLNL)
 - seismic tomography (SNL, ORNL)
 - cone penetrometer (WES, ARA)
 - passive vapor collection device (ORNL)
 - passive groundwater sampling (BNL)
 - TCE sensors (LLNL, PNL, FCI)
 - automated VOA sampling (LLNL, SRI/Waterloo)
 - vadose zone monitoring in uncased wells (SEA)

III. Case History- Hanford 200 West Area CCl4 Disposal; ERA and Arid Site Integrated Demo

- Plutonium purification wastes in 3 cribs- 637 tons CCl4
- Groundwater contamination over 2 sq. mi.; CCl4 detectable in 59 wells
- Co-contaminants include chloroform, TPB, DBP, DBBP, TCE, nitrate, fluoride, cyanide, uranium, chromium, fab oil, Pu-239-240, Am-241, tritium, Tc-99, Sr-90, Cs-137
- Vertical distribution of contaminants in the groundwater is poorly known
- Vertical and horizontal distribution of contaminants in the vadose zone is largely unknown
- Limited information on heterogeneity of soil column
- Major uncertainties about unsaturated and saturated flow characteristics
- Conventional drilling techniques difficult, slow, and expensive
- Purely conventional approaches unlikely to provide adequate characterization information for acceptable costs
- Some of the methods under evaluation at SRP can be applied to Hanford given dedicated boreholes

IV. Characterization Needs

- Improved Sampling
- In-situ Chemical Sensing
- Field Screening
- Chemical/Radiological Analysis
- Remote Sensing
- Hydrogeologic Characterization
- Data Management

V. Examples - Improved Sampling

- Drilling technology (SRP, LLNL, WHC, etc)
- Multiport sampling (PNL/WHC/Westbay)
- Passive groundwater sampler (BNL/Weisman Inst.)
- Clean microbiology (SRP, INEL, PNL)
- Vadose sampling for VOAs in cores (INEL, LLNL, SRP, PNL)
- Vadose zone sampling of borehole (SEAMIST)
- Cone penetrometer (WES/DOE, ARA/DOE)
- SST/DST sampling methods (WHC)

VI. Examples - In-situ Chemical Sensing

- BTEX, CHCl₃, TCE, CCl₄ (LLNL)
- BTEX and TCE (PNL/FCI)
- Cl optical emission (PNL)
- BTEX (ORNL)
- Surface enhanced Raman spectroscopy (ORNL, LLNL, EIC)
- Characterization Technology Project (PNL)

VII. Examples - Field Screening

- Direct inlet mass spectrometry (ORNL)
- Field portable GC/MS (LANL, JPL)
- Ion mobility spectrometry (LANL)
- Voltametric analysis for Cr, U, ferrocyanide, nitrate/nitrite, trace metals (PNL/NMSU)
- Laser fluorescence analysis (PNL/EPA/Chemcheck)
- Portable X-ray fluorescence (INEL, WHC)
- Supercritical fluid extraction (PNL, WHC)
- Mobile labs (PNL, WHC, etc.)

VIII. Examples - Chemical/Radiological Analysis

- Cutting edge methods, ie. ICP/MS, ITMS, LC/MS, etc (ORNL, PNL, etc)
- Mixed hazardous waste analysis (PNL/WHC, EG&G/RFP)
- Radiological analysis of high level samples i.e SST/DST
- Methods for organometallic complexes (PNL)
- Methods assessment (LANL, PNL/WHC, EPA/EMSL)
- Methods validation/round robin (EPA/EMSL, EML)

IX. Examples - Remote Sensing

- Surface geophysics, ie. GPR, EMI, electrical resistance, acoustic, magnetometer, metal detectors (PNL, WHC, EG&G)
- Robotics/remote geophysics/remote sizing (INEL, PNL, SNL, LLNL, ORNL)
- Mobile GPS (DOD)
- Cross borehole tomography, i.e EMI, electrical resistance, acoustic (LLNL, ORNL)
- Soil gas analysis (INEL, PNL, WHC, etc.)
- Groundwater flow probe (SNL, ORNL)
- Borehole gamma logging (WHC)
- Soil moisture/density probes (WHC)
- Remote water level (PNL)
- USRADS real time radiation survey (ORNL, PNL, WHC)
- Aerial and satellite photography (PNL, WHC, etc.)
- Long path FTIR (DOD, EPA)

XI. Examples - Hydrogeologic Characterization

- Alternative techniques for saturated flow characterization (PNL)
- Unsaturated flow characterization-centrifugation (PNL/WSU-TC)
- Paleogeomorphology investigations/geostatistical interpretation (PNL)

XII. Examples - Data Management

- HISS (PNL/WHC)
- WIDS (WHC)
- WIN (ORNL/HAZRAP)
- HEIS (PNL/WHC)
- GIS (PNL/WHC)
- GPS/HEIS/GIS interface
- LIMS (WHC)
- VISTA (PNL)
- Automated borehole correlation system (PNL)
- 3-D Conceptual model generator (PNL)
- Expert system for characterization methodology (EPA)
- Expert system for DQO selection

XIII. Future Considerations

- Funding - limited DOE emphasis on characterization methodology
- Regulatory acceptance - issue tends to inhibit development
- QA - tends to kill development
- Real world experience - methods must be applicable to realistic sampling situations
- Programmatic involvement - methods must be tested within realistic programmatic frameworks
- Time to maturity - may be long because of above stated problems
- Technology transfer - will typically require extensive experience and phased approach

Cultural Resource Statutes

- National Historic Preservation Act of 1966
- National Environmental Policy Act of 1969
- Executive Order 11593 (1971)
- Public Law 93-291 (1974)
- American Indian Religious Freedom Act (1978)
- Archaeological Resources Protection Act (1979)
- DOE Memo EH-231 (3/1990)

NHPA Section 106 Process

- Identify cultural properties. *100 Areas not adequately covered*
- Evaluate for eligibility to National Register of Historic places.
- Request Determination of Eligibility.
- Prepare Findings of Effect and Adverse Effect.
- Prepare mitigation plans.
- Conduct mitigation of project impacts.

Cultural Resource Issues All Operable Units

- Survey unpaved areas to river's edge.
- Record new sites and, later, evaluate them.
- Discuss the area with Indian elders to establish cultural significance, if any.
- Review and evaluate extant Manhattan Project facilities, if any.

Cultural Resource Issues All Operable Units (cont'd)

- Prepare Requests for Determination of Eligibility and Findings of Effect and Adverse Effect for all identified cultural properties.

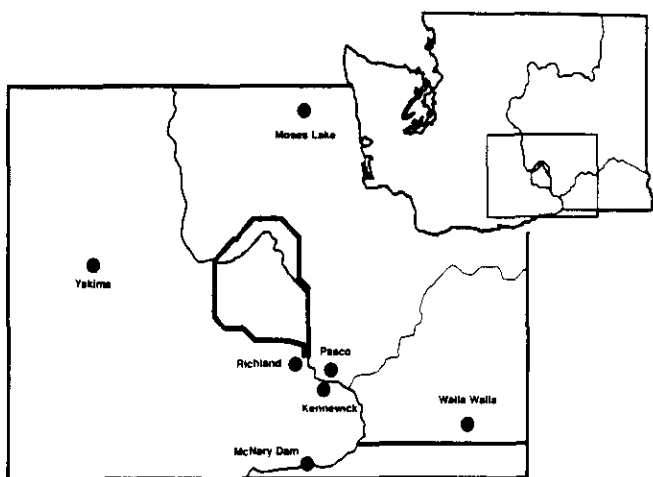
Manhattan Project facilities will be addressed as a group.

- If properties eligible for or listed on the National Register of Historic Places are identified and will be adversely affected, prepare mitigation plans in consultation with Tribes, State, and Advisory Council for Historic Preservation.



Hanford's Cultural Resources: Preserving Our Past





The U.S. Department of Energy's Hanford Site is located in southeastern Washington state and occupies 560 square miles of land north of the Tri-Cities (Richland, Pasco and Kennewick). This area, because of the Columbia River, was important to a number of Indian tribes and early settlers. Because of the protected status of Hanford, many undisturbed historic sites from these previous populations exist.

Hanford—More Than Meets the Eye

Many people know the recent history and present-day activities at the U.S. Department of Energy's (DOE) Hanford Site. Located along the Columbia River in southeastern Washington state, Hanford has been home to important national defense missions, scientific research and waste management activities for more than 45 years.

What is not widely known is that Hanford also has a rich native history. Once populated by Indian tribes and settlers, the 560-square-mile area contains an abundance of important cultural resources and archaeological deposits.

Vestiges of the Past

Humans have occupied the Columbia Plateau for more than 10,000 years. They left extensive archaeological deposits throughout the region. The Hanford Site lies on land ceded to the United States

by the 1855 treaties with the Yakima Indian Nation and the Confederated Tribes of the Umatilla Reservation.

Early weapons and utensils, hunting trails and the remains of lodgings and campsites hold the secrets of thousands of years of human history in the Northwest. This cultural legacy is especially valuable because many other vestiges of the past have been lost to hydroelectric development, farming and industrial construction activities.

At Hanford, because public access is limited, many of these resources are largely undisturbed and protected.

More than 148 archaeological and historic sites have been identified at Hanford and recorded with the Washington State Office of Archaeology and Historic Preservation. These include Indian villages, campsites, hunting camps and cemeteries. Non-Indian artifacts include the remnants of the communities of Hanford, White Bluffs, Ringold, the East White Bluffs ferry landing and the remains of homesteads and ranches.



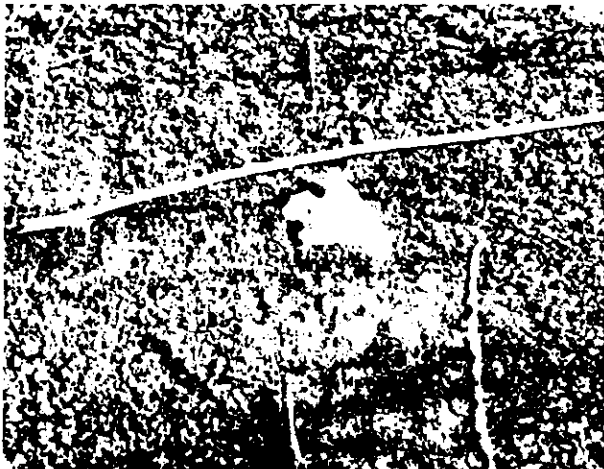
A member of a local Indian tribe stands in a blind used by prehistoric hunters. In the foreground is a stone barricade built to impede the movement of game. The decommissioned 100-B and C Reactors can be seen in the background. The B Reactor is eligible for listing in the National Register of Historic Places.

Balancing Hanford's Missions and Native American Interests

Federal laws require that DOE notify and consult with Indian leaders whenever a project that will affect an archaeological location is planned. In addition, the American Indian Religious Freedom Act requires federal agencies to consider the impact of their actions on the ability of Indians to believe, express and exercise their traditional religions.

Achieving an acceptable balance between sometimes conflicting objectives is a complex process that requires compassion, understanding and a willingness by all parties to work together in the spirit of cooperation.

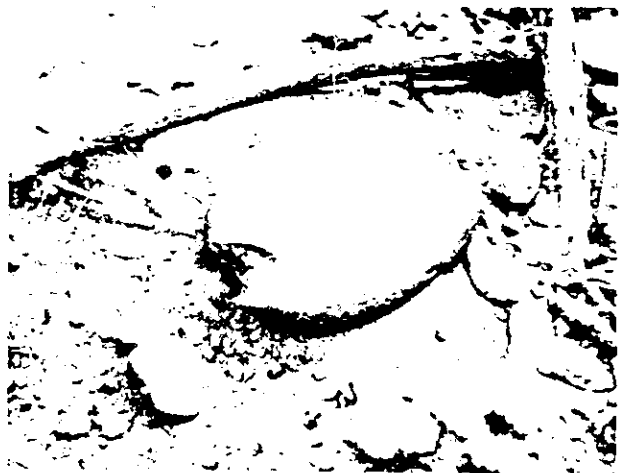
The protection and preservation of cultural resources at Hanford is an important part of that process. The federal government is committed to protecting tribal interests to the maximum extent possible. The primary expression of that commitment is embodied in the Hanford Cultural Resources Management Plan and effective operation of the Hanford Cultural Resources Laboratory.



An opal arrowhead lost at Hanford by an Indian hunter between 800 and 1,800 years ago.



This stone is part of a hopper-mortar device. Dried foods were pulverized in a basket attached to its surface.



Indian salmon fishing nets were held in place by sinkers such as this one.

Preserving Priceless Resources

A systematic method of identifying, preserving and protecting these resources was begun in 1987, when the DOE established the Hanford Cultural Resources Laboratory. This was in response to federal laws designed to protect cultural resources on all federal lands. The Hanford Cultural Resources Laboratory is managed by Battelle Memorial Institute under its contract with the DOE.

As landlord of the Hanford Site, DOE has responsibility to prevent the tampering, removal and collection of archaeological resources by unauthorized individuals. The Archaeological Resources Protection Act provides severe criminal and civil penalties for violators. The Hanford Cultural Resources Laboratory assists DOE in meeting this responsibility by providing training to members of the Hanford Patrol (Hanford's security force) in recognizing and protecting archaeological resources.

Battelle archaeologists prepared the comprehensive Hanford Cultural Resources Management Plan which now guides all activities at Hanford that may affect historic sites or cultural artifacts. An important part of the plan is to carry out a systematic search to locate, identify and catalog these resources.

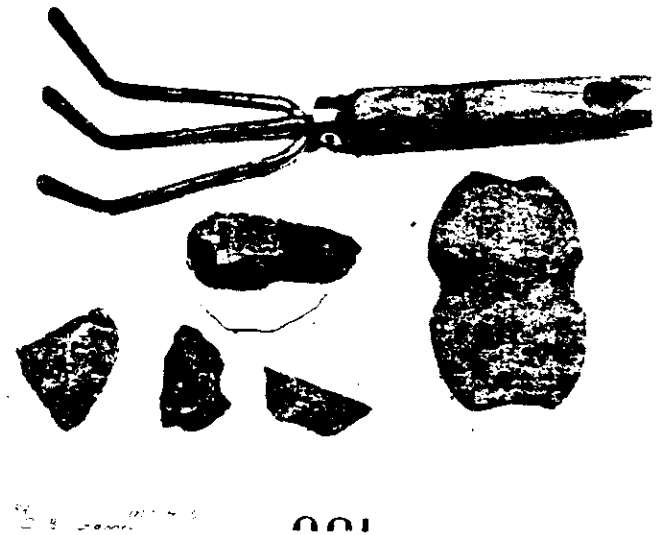
Under the plan a cultural resource review is required before and often during any construction work at Hanford. Construction sites are inspected and historical records are checked. If needed, test excavations are conducted and construction activities monitored. The purpose is to identify, evaluate and assess the potential effect of all construction at Hanford on archaeological and historical resources.

When items or areas of archaeological, historical or cultural significance are found, they are considered for nomination to the National Register of Historic Places. If eligibility is established, alternatives to the proposed construction, such as another location or the use of techniques to lessen the effects of construction, are evaluated and implemented where possible.

Although some resources near major facilities have been lost, most sites are intact and in good condition. The program plan ensures protection and preservation of future discoveries.

An inventory of archaeological and historical sites is under way. About 10 percent of Hanford will be inventoried over the next five years, using a specially designed sampling procedure to inspect each environmentally distinct portion of Hanford. It will take many years to complete this inventory.

The Hanford Cultural Resources Management Plan gives careful consideration to the protection of places sacred to the tribes, especially those traditionally used in ceremonies and rituals. Indian tribal leaders and representatives participated in development of the plan and continue to be consulted as it is implemented.



Many historically valuable artifacts have been destroyed by looters. These items were confiscated by the Hanford Patrol which rigorously enforces archaeological protection laws.

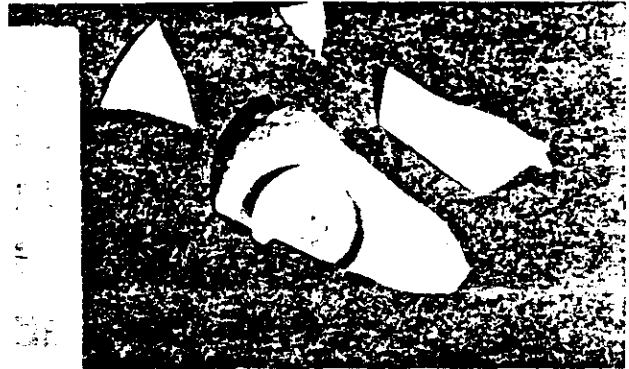
Human History at Hanford

From the end of the last Ice Age to the mid-19th century, the Columbia Basin was home to several Indian tribes. Around 1800, more than 3,000 Indians lived between the present town of Vantage and the mouth of the Snake River near Kennewick. These people were hunters, gatherers and fishermen. Today, many descendants of these early residents live nearby or on four Pacific Northwest reservations.

Some features of the Hanford region were important to the early Indian populations. Local tribes considered Rattlesnake and Gable Mountains, Gable Butte, the Columbia River and various burial grounds sacred. These locations were not only part of their religion, they were also important in the sacred rites of passage for Indian youth.

The Wanapums, an Indian tribe that still lives along the Columbia River, near Hanford, called Gable Mountain, *Nookshai*, the Indian term for otter. According to Indian teachings, Smohalla, a prophet of the Wanapum, held the first *washat* dance at Coyote Rapids in the northwest part of the Hanford Site. The *washat* ceremony was central to the Dreamer or Seven Drums religion, which spread to neighboring tribes. Tribal members living on the Colville, Nez Perce, Umatilla, Warm Springs and Yakima Indian Reservations continue to practice some elements of the Dreamer religion, or the similar Feather Cult religion.

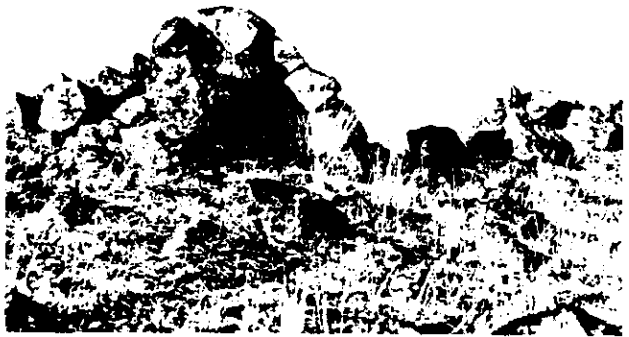
William Clark of the Lewis and Clark expedition traveled to the mouth of the Yakima River, at what is now called Columbia Point, in 1805 and was followed by fur trappers, Chinese miners, merchants, ranchers and farmers. Within a century, several small towns were thriving along the banks of the Columbia, Yakima and Snake Rivers. At their peak, in the 1920s, between 1,500 and 2,000 non-Indian settlers lived within the present-day boundaries of Hanford. Many important historical locations and artifacts from these prior occupants remain. The largest of these is the old Hanford townsite.



These fragments of a rice bowl were left by Chinese miners who searched for gold along the Columbia River in the late 19th century.



*Gable Mountain, near the center of the Hanford Site, is sacred to Indians of the mid-Columbia. The Indian name for the mountain is **Nookshai**, which means otter.*



This cairn, found on Gable Mountain, may have been erected by an Indian youth during an important religious ceremony known as the Spirit Quest.



To preserve his fruit crop in the hot Columbia Basin climate, an early Hanford orchardist built this cobblestone warehouse.



Archaeologists often can only determine the age of campsites and human habitations by the style of tools and weapons found there. Compare this 5,000 - 9,000-year-old point with the one on page three.



A campsite occupied between 2,500 and 5,000 years ago is littered with freshwater mussel shells (white flecks) and bases of hopper-mortars (large cobbles.)



This scoop was used at an early 20th century gold mining operation on a Columbia River gravel bar.

Keeping the Record

Most Indian tribes did not have a written language and many records of early non-Indian settlers have been lost. In the absence of written records only archaeological artifacts can disclose the story of human activity in the mid-Columbia region. Large collections of artifacts, accurately recorded as to physical location, age and tribal association, are important elements to understanding our past and predicting and planning our future. The record we create will serve as an information tool for historians and the descendants of the Indian populations who lived here.

For additional information about PNL's cultural resources program at Hanford, contact:

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Printed: December 1990



Cover Photo: This pumphouse, constructed in 1905 by a Seattle developer, allowed settlement of the towns of Hanford and White Bluffs. (Both towns were abandoned in the early forties when Hanford was established.)

General Topics Meeting Minutes

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